

CLAIMS

- 1 1. A method of searching for a character pattern within a data stream comprising:
2 computing a checksum for said character pattern;
3 computing another checksum for a predetermined portion of said data stream; and
4 comparing said another checksum to said checksum to determine if there is a match.
- 1 2. The method according to Claim 1 further comprising shifting said portion of said data
2 stream into a shift register.
- 1 3. The method according to Claim 1 further comprising:
2 shifting more data from said data stream into said shift register if said comparison
3 does not result in a match; and
4 recomputing said another checksum by removing an oldest unit of data from said
5 another checksum recomputation and adding said more data to said recomputation.
- 1 4. The method according to Claim 3 further comprising:
2 continuing said shifting and said recomputing until said comparison results in a
3 match.
- 1 5. The method according to Claim 1 further comprising:
2 shifting multiple portions of said data stream into said shift register.

1 6. The method according to Claim 5 further comprising computing a plurality of another
2 checksums based upon different parts of said multiple portions of said data stream.

1 7. The method according to Claim 6 wherein said character pattern includes a plurality
2 of character patterns and said checksum comprises a plurality of checksums;
3 said method further comprising simultaneously comparing said plurality of another
4 checksums to at least two of said plurality of checksums to determine if there are any
5 matches.

1 8. The method according to Claim 7 wherein at least two of said plurality of checksums
2 have different lengths.

1 9. The method according to Claim 1 wherein said character pattern includes a plurality
2 of character patterns and said checksum comprises a plurality of checksums;
3 said method further comprising simultaneously comparing said another checksum to
4 at least two of said plurality of checksums to determine if there are any matches.

1 10. The method according to Claim 1 wherein said character pattern includes a plurality
2 of character patterns and said checksum comprises a plurality of checksums;
3 said method further comprising comparing said another checksum to one of said
4 plurality of checksums to determine if there is a match;
5 recomputing said another checksum based upon a longer portion of said data stream;
6 and
7 comparing said recomputed another checksum to at least another of said plurality of
8 checksums.

1 11. The method according to Claim 1 wherein said potion of said data stream include a
2 byte of data.

1 12. The method according to Claim 1 wherein said potion of said data stream include a
2 plurality of bytes of data.

1 13. Apparatus that searches for a character pattern within a data stream comprising:
2 a register;
3 a processor for copying a predetermined portion of said data stream into said register;
4 a checksum generator configured to compute a checksum for said character pattern
5 and another checksum for said predetermined portion; and,
6 at least one comparator configured to compare said another checksum to said
7 checksum.

1 14. The apparatus according to Claim 13 wherein said register further includes a plurality
2 of registers.

1 15. The apparatus according to Claim 13 wherein said predetermined portion of said data
2 stream is a byte of data.

1 16. The apparatus according to Claim 13 wherein said predetermined portion of said data
2 stream is a plurality of bytes of data.

1 17. The apparatus according to Claim 13 wherein said checksum generator is configured
2 to respectively compute a plurality of checksums for a plurality of character patterns
3 and to compute another checksum for said predetermined portion; and,
4 wherein said at least one comparator includes a plurality of comparators each
5 configured to respectively compare said another checksum to different ones of said plurality of
6 checksums.

1 18. The apparatus according to Claim 17 wherein at least two of said plurality of
2 checksums have different lengths.

1 19. The apparatus according to Claim 17 wherein said checksum generator comprises a
2 plurality of checksum generators.

1 20. The apparatus according to Claim 13 wherein said processor is configured to shift
2 more data from said data stream into said register if said comparator does not detect a
3 match; and,
4 said checksum generator is configured to recompute said another checksum by
5 removing an oldest unit of data from said another checksum recomputation and adding said
6 more data to said recomputation.
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1 21. A method of searching for a character pattern within a data stream comprising:
2 computing a checksum for said character pattern; wherein said character pattern has a
3 length;
4 shifting a byte of data from said data stream into a register;
5 computing another checksum for said byte of said data stream;
6 continuing said shifting and computing of another checksum until a length of said
7 shifted bytes of data is equal to said length of said character pattern;
8 comparing said another checksum to said checksum to determine if a match exists;
9 shifting another byte of data from said data stream into said register if said
10 comparison does not result in a match; and
11 recomputing said another checksum by removing an oldest byte of data from said
12 another checksum recomputation and adding said another byte of data to said recomputation;
13 comparing said recomputed checksum to said checksum to determine if a match exist;
14 and,
15 continuing said shifting another byte, said recomputing, and said comparing until a
16 match exists.

22. Apparatus that searches for a character pattern within a data stream comprising:

register means for temporarily storing a portion of said data stream;

processor means, electrically coupled to said register means, for copying said portion of said data stream into said register means;

checksum generator means for computing a checksum for said character pattern and for computing another checksum for said portion of said data stream; and,

comparison means coupled to said checksum generator means for comparing said another checksum to said checksum to determine if a match exists.

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